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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,763	10/04/2004	Jason R. Ertel	GEMS8081.239	5762
27061	7590	09/06/2006	EXAMINER	
ZIOLKOWSKI PATENT SOLUTIONS GROUP, SC (GEMS)			BOOSALIS, FANI POLYZOS	
14135 NORTH CEDARBURG ROAD			ART UNIT	
MEQUON, WI 53097			PAPER NUMBER	
			2884	

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/711,763

Applicant(s)

ERTEL ET AL.

Examiner

Faye Boosalis

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 8-12, 14-21 and 23-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 8-11, 27 and 28 is/are allowed.
- 6) ☒ Claim(s) 12, 14, 16-21, 23-26 and 29 is/are rejected.
- 7) ☒ Claim(s) 15 and 30-31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Comment on Submissions***

1. This communication is responsive to submissions 20 June 2006.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12, 14, 16 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al (US 5,965,872 A) in view of *Watanabe et al* (US 2002/0005490 A1).

Regarding claim 12, Endo discloses a solid state x-ray detector comprising: a scintillator layer (904) configured to output light in response to x-ray exposure; an array of photosensitive detector elements (401) supported by a glass substrate (col. 9, lines 31-34) and configured to store electrical charge as a function of light output by the scintillator layer during data acquisition and output electrical signals indicative of the stored electrical charge during readout (col. 9, lines 9-22); a housing (101) enclosing the scintillator layer, the array of photosensitive detector elements, and the glass substrate (400) (See Fig. 10). Endo does not disclose the housing comprising viscoelastic material or such material located in discrete cavities in the periphery of the housing. Watanabe discloses the x-ray detector wherein in impact-absorbing material (38) is a viscoelastic material (i.e. plastic, rubber or elastic material) (See Abstract and

paragraph [0037]) secured to the housing (31a) and located in the one or more discrete cavities (51) substantially confined to respective identified prospective impact corners or a periphery of the housing (31a) (See Fig. 7 and paragraph [0039]). Watanabe teaches the shock absorbers (38) are inserted or arranged on the inner sides of the main body (31a) even if the cassette drops down by mistake the casing is instantaneously deformed, the shock is absorbed by the shock absorbers thereby the shock directly transmitting to the support (33) is reduced (paragraph [0039]). Therefore, it would have been obvious to modify the detector disclosed by Endo, to include a viscoelectric material secured to the housing located to one or more discrete cavities, as disclosed supra by Watanabe, to allow for a more versatile apparatus.

Regarding claim 14, Watanabe discloses the solid-state x-ray detector wherein the housing (31a) includes an insert of viscoelastic material (i.e. plastic, rubber or elastic material) positioned at each corner thereof in the one or more cavities (51) (See Fig. 7 and paragraph [0039]).

Regarding claim 16, although Endo nor Watanabe specifically disclose of a drop distance, of 20 cm, of the detector, Watanabe does disclose shock absorbers made of sheet-like elastic material or gel material are disposed on the inner side of the side walls of the casing, even if the apparatus drops down from its side wall by mistake and the side wall of the casing is instantaneously deformed, the shock is absorbed by the shock absorber, thereby the shock transmitting to the support, the x-ray image detection panel, the flexible circuit board or the like can be reduced. As a result, the shock resistance of the apparatus is improved (See Abstract).

Regarding claim 29, Endo discloses a solid state x-ray detector comprising: a scintillator layer (904) an array of photosensitive detector elements (401) and a glass substrate (col. 9, lines 31-34) and a housing (101) enclosing the scintillator layer, the array of photosensitive detector elements, and the glass substrate (400) (See Fig. 10). Endo does not disclose the housing comprising viscoelastic material serve as shock absorbing material. Watanabe discloses the viscoelastic material (i.e. plastic, rubber or elastic material) (51) at corners of the casing serve to absorb a sufficient percentage of shock and resulting vibrations of a drop incident such that any shock or vibration experienced by components is insufficient to cause damage thereto (paragraphs [0049]-[0051]).

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al (US 5,965,872 A) and *Watanabe et al* (US 2002/0005490 A1) as applied to claim 12 above, and further in view of *Watanabe et al* (US 2002/0181659 A1).

Regarding claim 17, Endo discloses a solid state x-ray detector comprising: a scintillator layer (904) configured to output light in response to x-ray exposure; an array of photosensitive detector elements (401) supported by a glass substrate (col. 9, lines 31-34) and configured to store electrical charge as a function of light output by the scintillator layer during data acquisition and output electrical signals indicative of the stored electrical charge during readout (col. 9, lines 9-22); a housing (101) enclosing the scintillator layer, the array of photosensitive detector elements, and the glass substrate (400) (See Fig. 10). Watanabe (490) discloses the x-ray detector wherein in impact-absorbing material (38) is a viscoelastic material (See Abstract and paragraph [0037]).

Neither Endo nor Watanabe discloses the cover assembly including a handle for portability of the detector. Watanabe (659) disclose a radiographic apparatus comprising a cover assembly (21)(22) wherein the assembly includes a handle (32) to support portability thereof (See Fig. 3, ABSTRACT and paragraph [0047]). Watanabe teaches the a handle (32) (holding hole) passes through the center of gravity of the electronic cassette (11 or the vicinity thereof, when the operator holds the electronic cassette a rotational movement caused by the deviation from the center of gravity does not act on the electronic cassette and thus the operator can easily hold the electronic cassette (paragraph [0047]). Therefore, it would have been obvious to modify the apparatus suggested by Endo and Watanabe (490), to include a handle, as disclosed supra by Watanabe (659), to allow for a more versatile apparatus.

5. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al (US 5,965,872 A), *Watanabe et al* (US 2002/0005490 A1) as applied to claim 12 above, and further in view of *Jeromin et al* (US 5,661,309 A).

Regarding claim 18, Endo discloses a solid state x-ray detector comprising: a scintillator layer (904) configured to output light in response to x-ray exposure; an array of photosensitive detector elements (401) supported by a glass substrate (col. 9, lines 31-34) and configured to store electrical charge as a function of light output by the scintillator layer during data acquisition and output electrical signals indicative of the stored electrical charge during readout (col. 9, lines 9-22); a housing (101) enclosing the scintillator layer, the array of photosensitive detector elements, and the glass substrate (400) (See Fig. 10). Watanabe (490) discloses the x-ray detector wherein in impact-

absorbing material (38) is a viscoelastic material (See Abstract and paragraph [0037]). Neither Endo nor Watanabe discloses wherein the viscoelastic material includes foam. Jeromin discloses an x-ray detector wherein the impact-absorbing material includes foam (col. 3, lines 43-48). Jeromin teaches a design of construction of the cassette is chosen to impart protection from handling damage during frequent movements and possible accidental mishaps, including a load-distributing member (25) made, for example, from a low-density polyurethane foam (col. 3, lines 43-48). Therefore, it would have been obvious to modify the x-ray detector disclosed by Endo and Watanabe to include foam in the impact-absorbing material, as disclosed supra by Jeromin, to allow for a more versatile x-ray detector.

Regarding claim 19, Watanabe discloses the solid-state x-ray detector further comprising an insert of viscoelastic material (91b) at one or more corners of the housing (91) (paragraph [0055]).

6. Claims 20-21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Frederick et al (US 5,796,109 A)* in view of *Watanabe et al (US 2002/0005490 A1)*.

Regarding claim 20, Frederick disclose a cover assembly (18) to encase components of an x-ray detector (10), the cover assembly comprising: a top support panel (18) and a bottom support panel (18) collectively defining an internal volume configured and sized to house components of an x-ray detector (Fig. 2). Frederick does not specifically disclose of a transverse cavity formed in at least one of the top and bottom support panels. Watanabe discloses at least one substantially transverse cavity formed in at least one of the top support panel and the bottom support panel (See Fig.

and paragraph [0038] and [0057]); and viscoelastic impact-absorbing material (i.e. elastic sheet-like rubber, gel material or plastic) that comprise a first impact-absorbing material portion disposed in the at least one substantially transverse cavity (paragraph [0038] and [0057]), the viscoelastic impact-absorbing material different from the top support and bottom support panel are formed; at least one corner cavity substantially confined to a respective corner of the at least one of the top support panel and the bottom support panel (Fig. 7 and paragraph [0048]); and a second impact-absorbing material portion of the viscoelastic impact-absorbing material (i.e. elastic sheet-like rubber, gel material or plastic) disposed in the at least one corner cavity. Watanabe teaches shock absorbers are disposed at portions (i.e. four corners) at the inner sides of the side walls of the casing where there is no flexible circuit board (paragraph [0048]) and shock absorbers made of plastic or rubber (elastic member) and the relatively high in hardness corresponding to the respective gaps between the circuit board are fitted to the inner walls (inner sides of the side walls) of the casing (paragraph [0049]). Therefore it would have been obvious to modify the cover assembly disclosed by Frederick, to include traverse cavities and corner cavities formed on the support panels, as disclosed by Watanabe, to allow for a more versatile apparatus.

Regarding claim 21, Watanabe discloses wherein each corner of the at least one of the top and bottom support panel comprises a respective impact-absorbing material portion (51) of the viscoelastic impact-absorbing material disposed therein (See Fig. 7).

Regarding claim 26, Frederick discloses a radiation detector comprising a cover assembly (18) utilized to withstand more severe vibration and shock environments and



therefore such assembly can prevent fracturing of the glass substrate housed in the internal volume when subjected to a heavy pound point-load (col. 5, lines 50-55 and col. 10, 45-48).

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Watanabe et al* (US 2002/0005490 A1) as applied to claim 22 above, and further in view of *Jeromin et al* (US 5,661,309 A).

Regarding claim 23, Watanabe discloses a cavity (91d) formed in each corner of the at least one of the top support panel (91) and the bottom support panel (91) wherein the impact-absorbing material includes viscoelastic material (102) (Fig. 11 and 12 and paragraph [0057]). Watanabe does not disclose of the viscoelastic material including foam. Jeromin discloses an x-ray detector wherein the impact-absorbing material includes foam (col. 3, lines 43-48). Jeromin teaches a design of construction of the cassette is chosen to impart protection from handling damage during frequent movements and possible accidental mishaps, including a load-distributing member (25) made, for example, from a low-density polyurethane foam (col. 3, lines 43-48). Therefore, it would have been obvious to modify the x-ray detector disclosed by Endo and Watanabe to include foam in the impact-absorbing material, as disclosed supra by Jeromin, to allow for a more versatile x-ray detector.

8. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Frederick et al* (US 5,796,109 A) in view of *Watanabe et al* (US 2002/0005490 A1) as applied to claim 20 above, and further in view of *Watanabe et al* (US 2002/0181659 A1).

Regarding claim 24, Frederick disclose a cover assembly (18) to encase components of an x-ray detector (10), the cover assembly comprising: a top support panel (18) and a bottom support panel (18) collectively defining an internal volume configured and sized to house components of an x-ray detector (Fig. 2). Watanabe (490) discloses at least one cavity (91d) is formed in at least one of the top or bottom supporting panels (91); and impact-absorbing material (102) is disposed in the at least one cavity, the impact absorbing material differing from that which the top support panel and bottom panel are formed (Fig. 11 and 12 and paragraph [0057]). Neither Frederick nor Watanabe (490) disclose of the cover assembly comprising a handle. Watanabe (659) discloses the cover assembly (21)(22) comprising a handle (32) defined in the supporting panel (See Fig. 3, ABSTRACT and paragraph [0047]). Watanabe teaches the a handle (32) (holding hole) passes through the center of gravity of the electronic cassette (11 or the vicinity thereof, when the operator holds the electronic cassette a rotational movement caused by the deviation from the center of gravity does not act on the electronic cassette and thus the operator can easily hold the electronic cassette (paragraph [0047]). Therefore, it would have been obvious to modify the apparatus suggested by Shoji and Frederick, to include a handle, as disclosed supra by Watanabe, to allow for a more versatile apparatus.

Regarding claim 25, Watanabe (659) discloses the cover assembly wherein the top and bottom support panel (21)(22) are comprised of carbon graphite (paragraph [0049]).

***Allowable Subject Matter***

9. Claims 1-4 and 8-11 and 27-28 are allowed.

10. The following is an examiner's statement of reasons for allowance:

Regarding independent claim 1, the reference such as Kump et al (US 7,046,764 B1) discloses an x-ray detector comprising: an x-ray detector layer configured to output electrical signals in response to reception of x-rays; a circuit (72) having a plurality of electronic components disposed thereon and configured to at least control readout of the electrical signals from the x-ray detection layer; and a cover assembly (48) enclosing the x-ray detection layer and the circuit board, the cover assembly (48) formed of a first material and incorporating viscoelastic impact-absorbing material different from the first material; and one or more bumpers (82) formed of the viscoelastic impact-absorbing material and substantially confined to respective identified prospective impact corners of an external perimeter of the cover assembly. However, the reference cannot be applied as prior art because it is filed on the same day as the instant application.

The remaining claims 2-4, 8-11 and 27-28 are allowable based on their dependency.

11. Claims 15 and 30-31 are objected to as being dependent upon a rejected based claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding dependent claims 15 and 30-31, the prior art, as stated supra, does not disclose or fairly suggest of a solid state x-ray detector comprising a transverse layer, coextensive with an expanse of a major dimension of the top panel of the

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housing, of viscoelastic material between the scintillator layer and an undersurface of the top panel of the housing.


**Conclusion**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Boosalis whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FB

  
OTILIA GABOR  
PRIMARY EXAMINER